

MOUNTAIN HEMLOCK SERIES

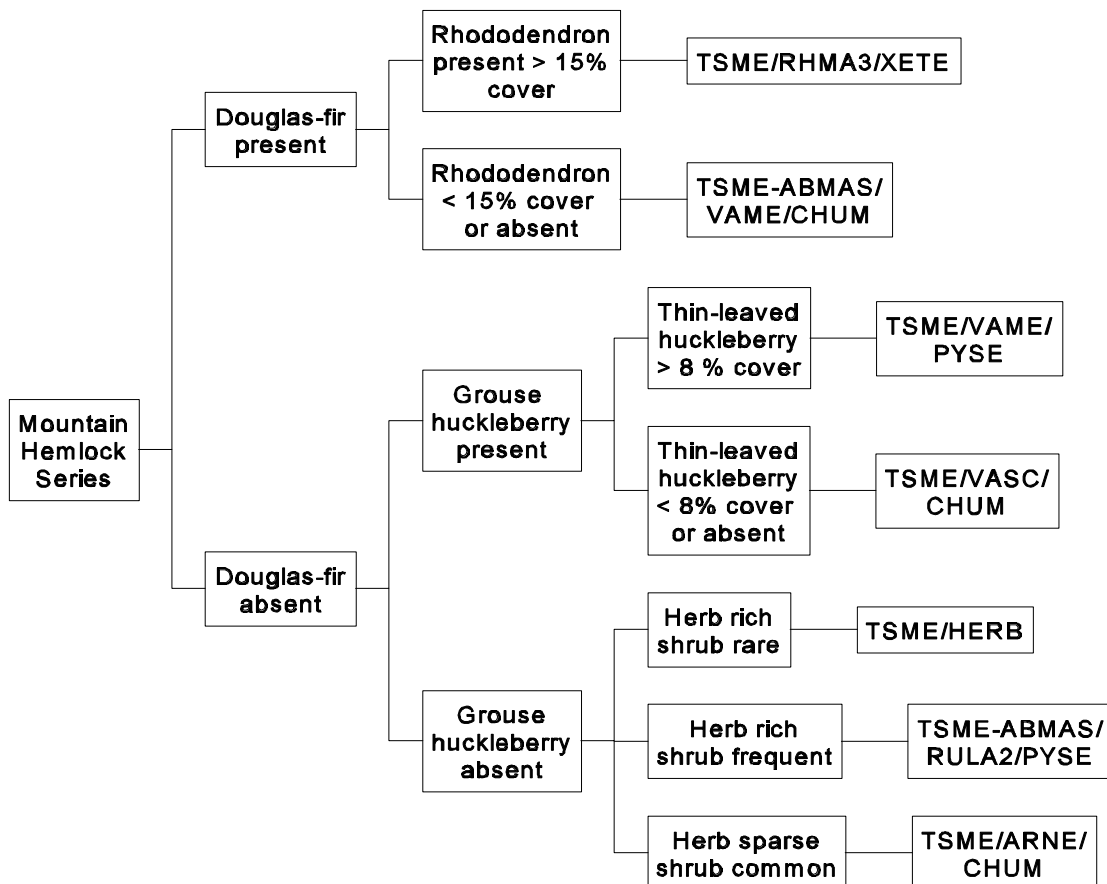
Tsuga mertensiana

TSME

Lisa A. McCrimmon

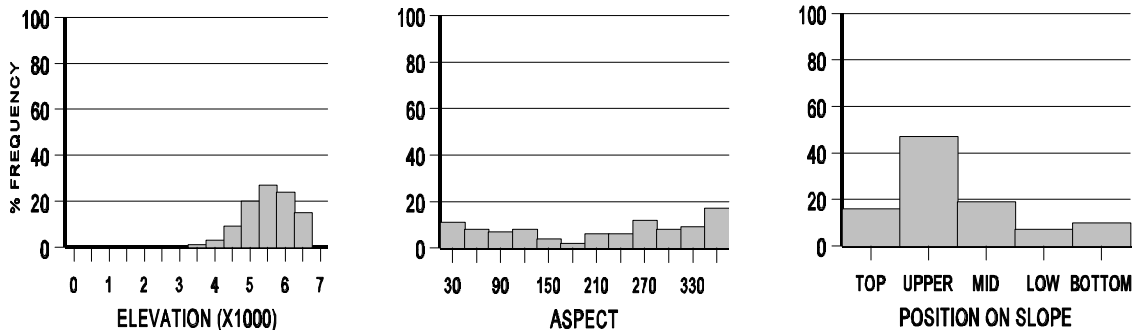
Mountain hemlock ranges from southeast Alaska, south through the Cascade Mountains, to the Sierra Nevada in California. In southwestern Oregon mountain hemlock occurs at high elevations with cold temperatures and moderate precipitation.

The Mountain Hemlock Series is the highest elevation forested series in southern Oregon. In the southern Oregon Cascades it occurs as a fairly continuous band, but in the Siskiyou Mountains it is fragmented, found only on northerly aspects of the higher peaks and ridges. The Mountain Hemlock Series is replaced at lower elevations by the Shasta Red Fir Series and at higher elevations by subalpine meadows. The flowchart below shows a graphical presentation of the classification and the relationship between associations.

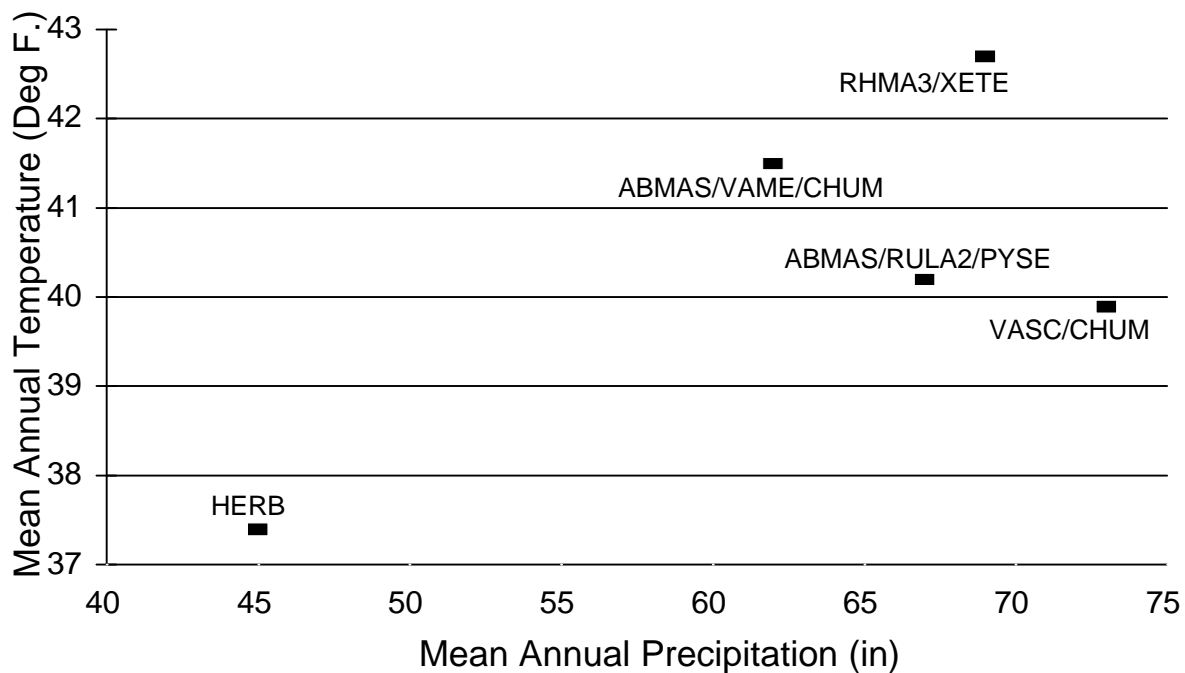


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Elevation ranges from approximately 3950 feet to 6790 feet in the Cascades and from 5330 feet to 7340 feet in the Siskiyou. All aspects are represented and slope can range from flat to very steep. Topographic position can range from ridge tops to valley bottoms, but most frequently occurs between ridge tops and middle one-third slope.



The Mountain Hemlock Series generally occurs in areas that are cool to cold, and wet. Average annual temperature ranges from 36 degrees F to 45 degrees F with an average of 40 degrees F. Average annual precipitation ranges from 40 inches to 80 inches with an average of 63 inches. The relative environments of the plant associations are shown below. Each association is plotted by average annual temperature and average annual precipitation. No climatic data is available for Mountain Hemlock/Thin-leaved Huckleberry/One-sided Pyrola and Mountain Hemlock/Pinemat Manzanita/Common Prince's-pine.



Parent material is highly variable, although pumice, andesite, and basalt are the most common, with schist, granodiorite, and mixed metamorphic materials occurring less frequently. Soils range from shallow to deep. Surface gravel cover ranges from 0 to 60 percent, with an average of 5 percent. Surface rock cover ranges from 0 to 85 percent, with an average of 9 percent. Exposed bedrock cover ranges from 0 to

15 percent, with an average of 2 percent. Bare ground ranges from 0 to 15 percent,
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with an average of 1 percent. Litter cover ranges from 30 to 100 percent, with an average of 92 percent. Moss cover, however, is low, ranging from 0 to 15 percent, with an average of 2 percent. This reflects the cold soil conditions typical of the Series.

Mountain hemlock and Shasta red fir are dominant tree species in the overstory, with western white pine and Douglas-fir occurring occasionally. Mountain hemlock is dominant in the understory, with Shasta red fir occurring frequently. On warmer sites, Douglas-fir, white fir, and western hemlock may be present. Thin-leaved huckleberry, one-sided pyrola, and common prince's-pine occur commonly.

Total species richness (the average number of species of vascular plants) is calculated for each Association. The average total species richness for the Mountain Hemlock Series ranges between 9 and 28. Richness is rated as very low, 9 to 12 species; low, 13 to 16 species; intermediate, 17 to 20 species; high, 21 to 24 species; and very high, 25 to 28 species.

Estimates of total cover by vegetation layer were made for wildlife interpretations. Upper layer tree cover ranges from 50 percent in Mountain Hemlock/Grouse Huckleberry/Common Prince's-pine to 61 percent in Mountain Hemlock/Herb and averages 57 percent for the Series. Mid-layer tree cover ranges from 25 to 55 percent and averages 31 percent. Lower layer tree cover ranges from 14 to 28 percent and averages 20 percent. High shrub cover ranges from 0 to 71 percent and averages 9 percent. Low shrub cover ranges from 0 to 38 percent and averages 26 percent. Herb/grass layer cover ranges from 1 to 33 percent and averages 18 percent.

Seven final plant associations have been classified for the Series in southwestern Oregon. They were described from 98 plots: 62 Forest Service, 32 Sky Lakes Wilderness, and 4 Bureau of Land Management. The following shows the relationship of draft and final plant associations. The draft associations are listed, with final associations below, each in order of most to least common, with the percentage of plots that make up each association (refer to Methods section).

TSME-ABAM/RHMA (N=7)

TSME/RHMA3/XETE (71%)

TSME-ABMAS/VAME/CHUM (14%)

PSME/ARNE-SWO (14%)

TSME-ABLA2/VASC (N=4)

TSME/VASC/CHUM (50%)

TSME-ABMAS/VAME/CHUM (50%)

TSME-ABMAS/VAME (N=18)

TSME-ABMAS/VAME/CHUM (56%)

TSME-ABMAS/RULA2/PYSE (44%)

TSME/CHUM/LIBOL (N=4)

TSME-ABMAS/VAME/CHUM (75%)

ABMAS/VAME/CHUM (25%)

TSME/POPU (N=12)

TSME/HERB (N=92%)

TSME-ABMAS/RULA2/PYSE (N=8%)

TSME/VASC/Depauperate (N=13)

TSME-ABMAS/VAME/CHUM (46%)

TSME/VASC/CHUM (38%)

TSME-ABMAS/RULA2/PYSE (15%)

KEY TO THE MOUNTAIN HEMLOCK PLANT ASSOCIATIONS

- | | | |
|-----|--|---------------------------------------|
| 1a. | Pacific rhododendron (RHMA3) present with greater than 15 percent cover. | TSME/RHMA3/XETE
Page TSME 6 |
| 1b. | Pacific rhododendron (RHMA3) absent, or if present, with less than 15 percent cover. | 2 |
| 2a. | Douglas-fir (PSME) present. | TSME-ABMAS/VAME/CHUM
Page TSME 8 |
| 2b. | Douglas-fir (PSME) absent. | 3 |
| 3a. | White fir (ABCO) and western white pine (PIMO3) present. | TSME-ABMAS/VAME/CHUM
Page TSME 8 |
| 3b. | White fir (ABCO) and/or western white pine (PIMO3) absent. | 4 |
| 4a. | Dwarf bramble (RULA2) present. | TSME-ABMAS/RULA2/PYSE
Page TSME 10 |
| 4b. | Dwarf bramble (RULA2) absent. | 5 |
| 5a. | Grouse huckleberry (VASC) present. | |
| 6 | | |
| 5b. | Grouse huckleberry (VASC) absent. | 7 |
| 6a. | Thin-leaved huckleberry (VAME) present with greater than 8 percent cover. Total combined cover of shrubs, herbs, and grasses, not including grouse huckleberry (VASC), greater than 20 percent. | TSME/VAME/PYSE
Page TSME 12 |
| 6b. | Thin-leaved huckleberry (VAME) absent, or if present, with less than 8 percent cover. Total combined cover of shrubs, herbs, and grasses, not including grouse huckleberry (VASC), less than 20 percent. | TSME/VASC/CHUM
Page TSME 14 |

7a. Common prince's-pine (CHUM) present with cover greater than or equal to 2 percent. 8

7b. Common prince's-pine (CHUM) absent, or if present, with cover equal to 1 percent. 9

8a. Thin-leaved huckleberry (VAME) present. TSME/VAME/PYSE
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8b. Thin-leaved huckleberry (VAME) absent. TSME/ARNE/CHUM
Page TSME 16

9a. White fir (ABCO) present. TSME-ABMAS/RULA2/PYSE
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9b. White fir (ABCO) absent. TSME/HERB
Page TSME 18